

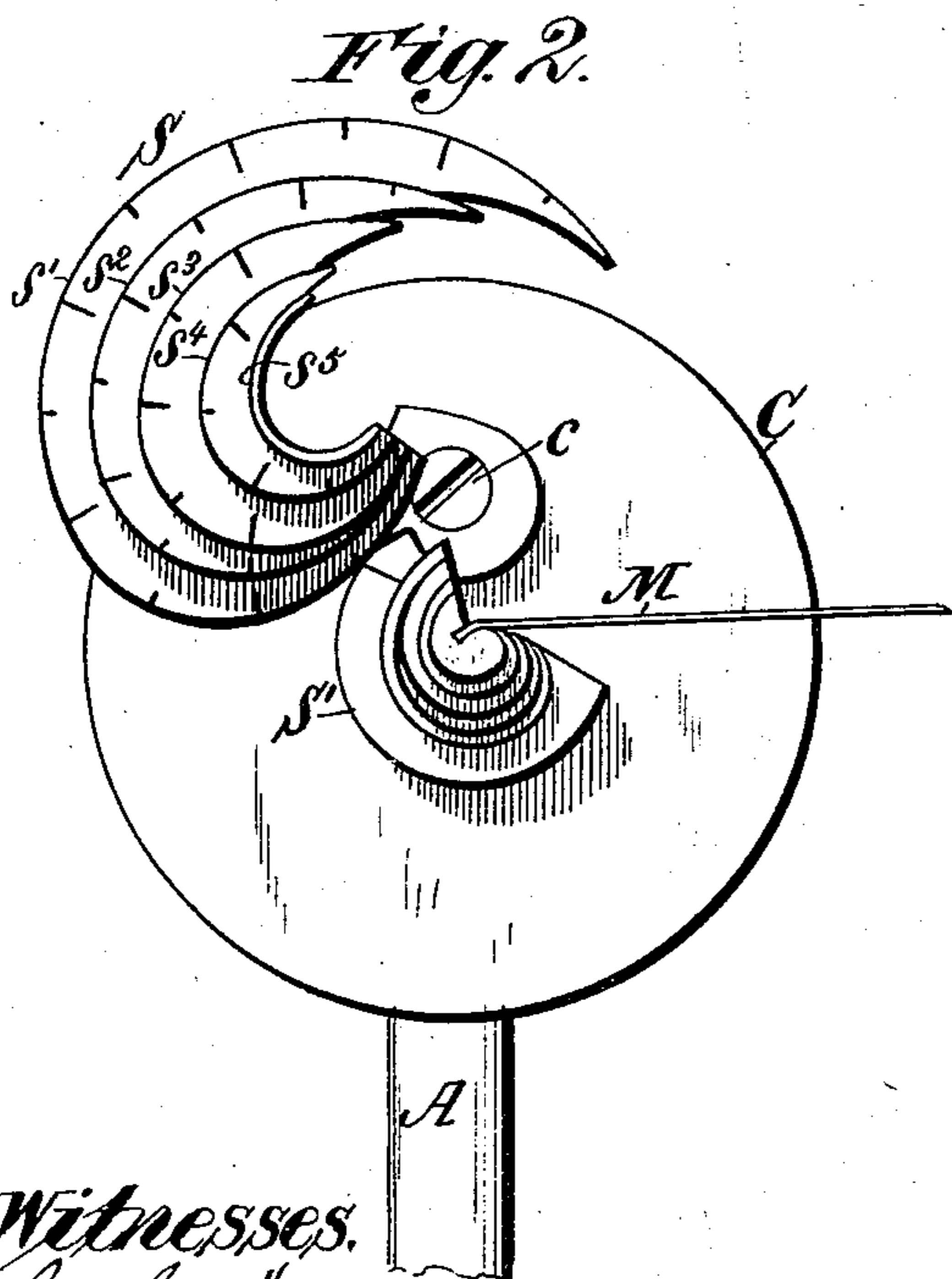
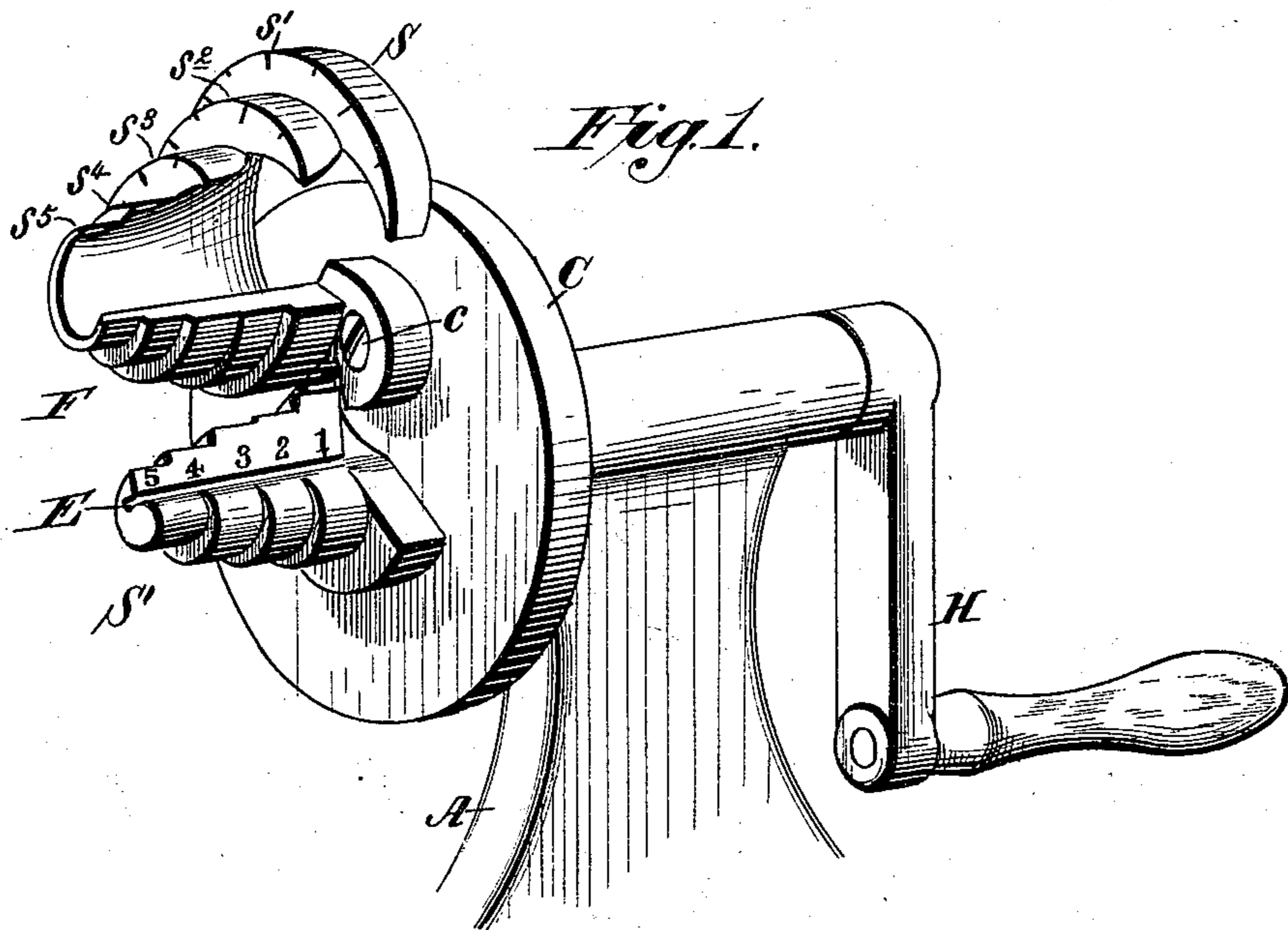
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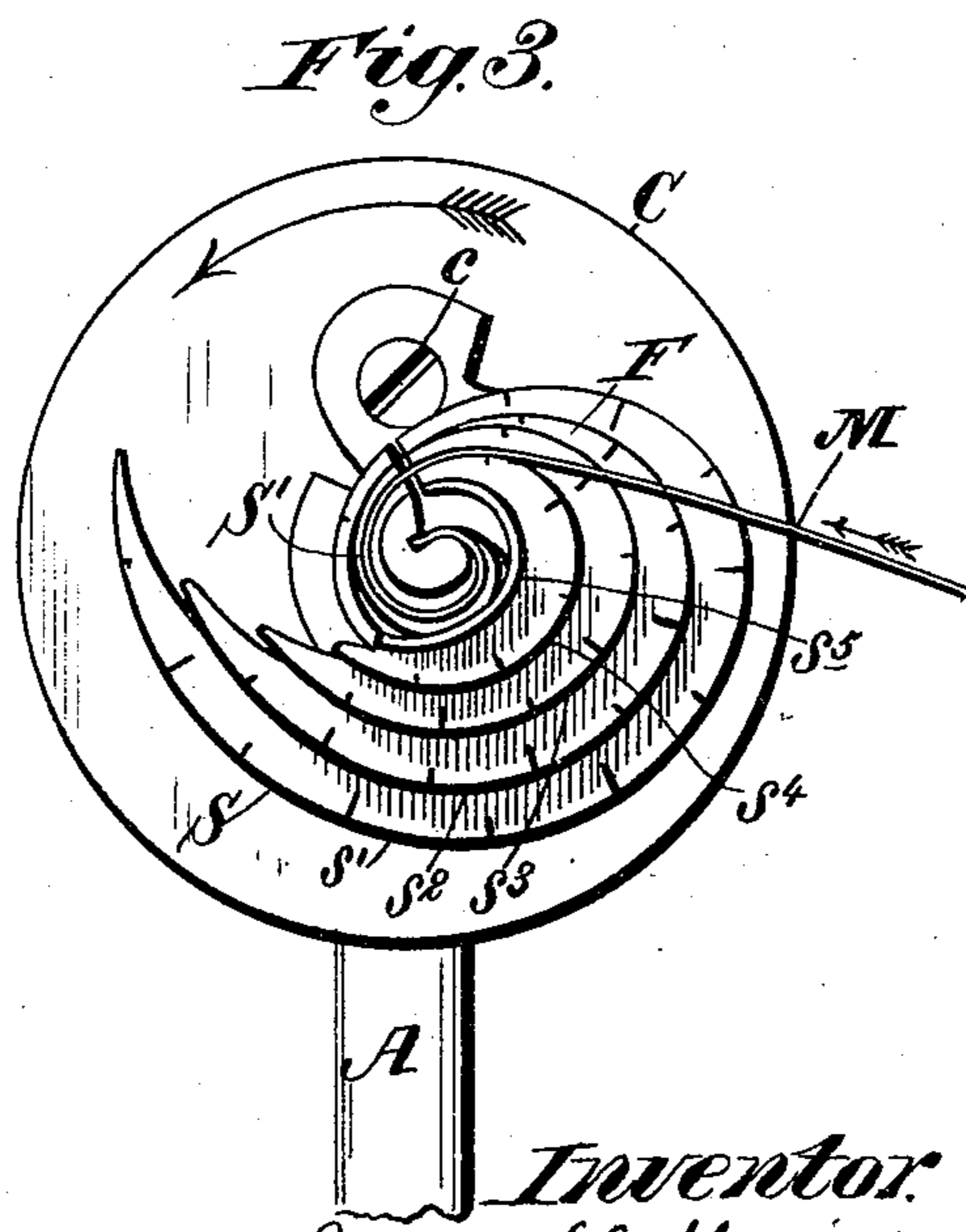
T. L. STEWART.
METAL WORKING TOOL.

No. 560,239.

Patented May 19, 1896.



Witnesses.
S. S. Newton
Wm M Ernst



Inventor.
Theodore J. Stewart
By William R. Baird
His Attorney

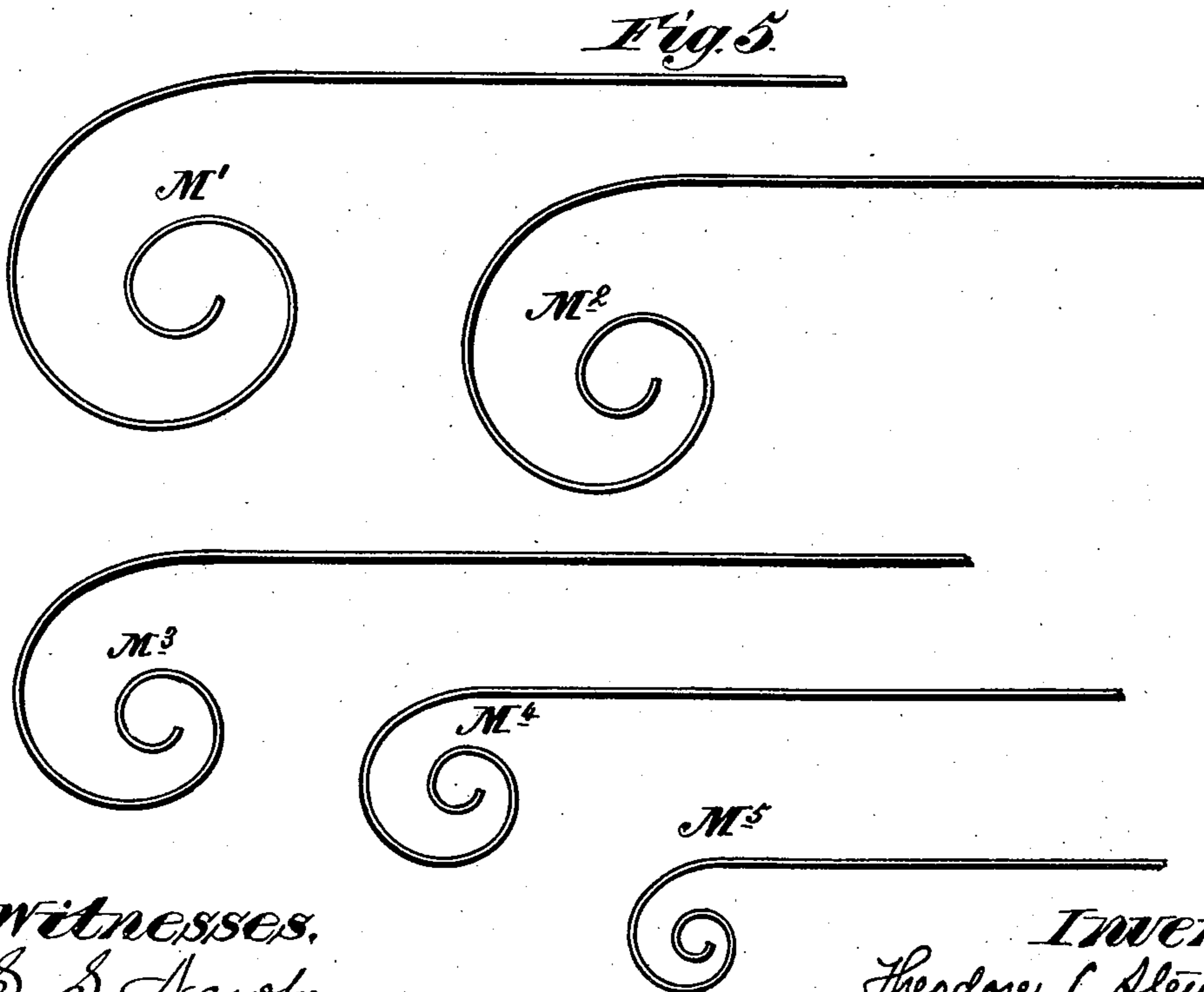
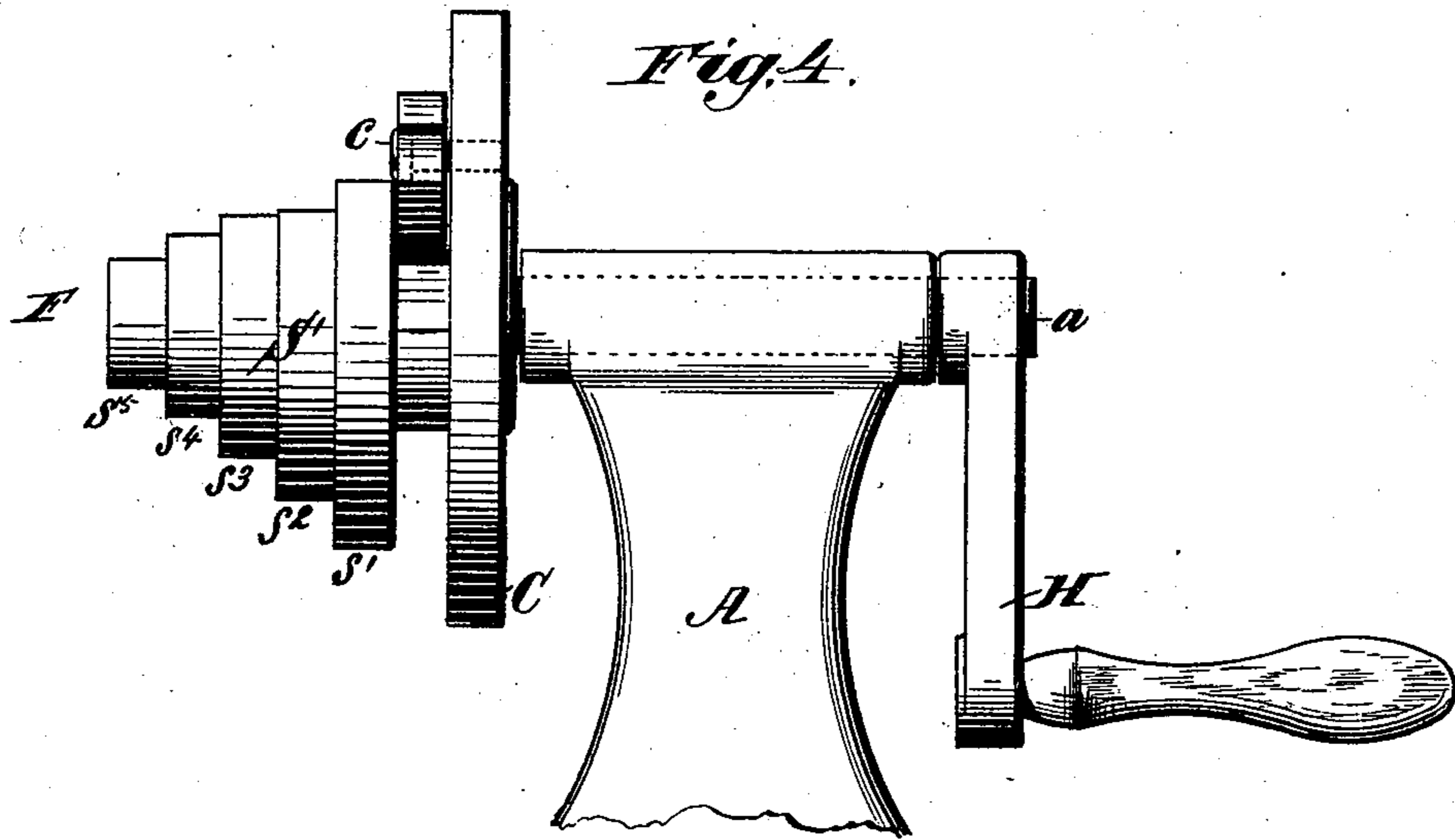
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UNITED STATES PATENT OFFICE.

THEODORE LEWIS STEWART, OF BROOKLYN, NEW YORK.

METAL-WORKING TOOL.

SPECIFICATION forming part of Letters Patent No. 560,239, dated May 19, 1896.

Application filed February 23, 1895. Serial No. 539,326. (No model.)

To all whom it may concern:

Be it known that I, THEODORE LEWIS STEWART, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Metal-Working Tools; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to tools for metal-working; and its novelty consists in the construction and adaptation of the parts, as will be more specifically hereinafter pointed out. The working of thin strips of pliable metal into artistic forms by bending and turning the same and uniting the parts so made, and which has received the name of "Venetian ironwork," has become a fashionable pastime; and the object of my invention is to produce a tool which will facilitate the bending of the metal into desirable curved forms.

In the drawings, Figure 1 is a perspective view of my improved metal-working tool, showing the movable section of the conical former at its highest position; and Fig. 2 is a front view of the same. Fig. 3 is a front view of the same with the movable section at its lowest position. Fig. 4 is a side view of the tool, showing the conical former in its highest position. Fig. 5 shows in outline the curved metal forms made by the use of the several steps or sections of the conical former.

In the drawings, in which the same letters refer to the same parts in all of the figures, A is a standard of any suitable form or material supporting in suitable bearings an axle *a*, adapted to be turned by a handle H or other suitable means, and to which at one end is rigidly secured a plate or disk C, which turns with the axle. Projecting outwardly from the face of this disk C is a former F in the shape of an interrupted stepped cone composed of two sections, one, S', a fixed section having a longitudinal slot E substantially parallel with the center line of the axle *a*, and the other, S, a movable hinged section adapted to turn on a pivot *c*, secured to the face of the disk C. This former F, when the fixed and movable sections are in contact, as shown in Fig. 3, is composed of a series of

steps S', S², S³, S⁴, and S⁵, each having the outline of an involute or similar curve, and the length of the peripheries of which decrease as their distance from the face of the disk C increases. Each step consists of a plane surface graduated and parallel to the face of the disk C, and a curved surface at right angles thereto, and having, as I have said, a suitable curved outline, as shown in the drawings. That portion of the fixed section S' of the former F which is in view when the movable section S is at its highest position is numbered or lettered to correspond with the enumeration or designation of the several steps of the former.

In Fig. 5 I illustrate the size and shape of the curves which may be produced by the use of the several steps of the former of the tool which I have chosen to illustrate. For instance, M' is produced by the use of the step S', M² by the use of the step S², and so on.

The method of using the tool is easily understood. The strip of metal M to be bent is grasped in the left hand of the operator and its end inserted in the slot E, as shown in Fig. 2, opposite that one of the steps which is to be used as a guide for curving the metal. The handle H is then rotated in a direction opposite to the motion of the hands of a watch, or away from the operator. The end of the strip M being firmly held in the slot, as the former F revolves the strip M is bent to conform to the outline of the periphery of that one of the steps opposite to which it was inserted in the slot, and as the revolution is completed the metal is bent into the form of a complete spiral or involute. The strip is then removed from the former and another strip is similarly shaped if desired.

The advantages of my invention are numerous. The series of steps of different sizes of which the former is composed enables the operator to shape the metal into curves of different sizes on the same tool; the graduations on the faces of the steps enable the operator to secure the exact duplication of any curve desired; each strip is formed with its curved surface at right angles to the plane of its longitudinal center line; the numbers above the slot secure accuracy in adjusting the strips in place; power may be applied if

desired to curve the more rigid forms of metal, and finally, there is nothing about the tool to get out of order easily and it is inexpensive.

Having described my invention, what I claim as new is—

- 5 1. In a metal-working tool, a former consisting of an interrupted stepped cone, each step having a spiral periphery as and for the purposes described.
- 10 2. In a metal-working tool, a former consisting of one movable and one rigid section, making when the two sections are in contact, a cone composed of a series of steps the peripheries of which are spirally curved, as and
15 for the purposes described.
3. In a metal-working tool, a former composed of a series of steps projecting from the face of a disk to which it is secured, each step having a graduated plane surface parallel to the face of the disk, and a spirally-
20 curved surface at right angles thereto, in

combination with means for actuating the said disk, as and for the purposes described.

4. In a metal-working tool, a disk adapted to be rotated by suitable mechanism and provided with an interrupted stepped cone, each step having a spiral periphery, as and for the purposes described. 25

5. In a metal-working tool a former composed of a fixed section longitudinally slotted, and a movable section, and forming when the two sections are in contact, a stepped cone, each step of which has a spiral periphery, as and for the purposes described. 30

In testimony whereof I have signed this specification in the presence of two subscribing witnesses. 35

THEODORE LEWIS STEWART.

Witnesses:

WILLIAM R. BAIRD,
ALBERT DORELY.